

### Summary

Method for operating a sensor for determining the concentration of oxidizing gases in gas mixtures, especially of the nitrogen oxide concentration in exhaust gases of internal combustion engines, wherein the sensor includes: at least one chamber (1; 2) mounted in a solid state electrolyte (20), the chamber being connected to the gas mixture via a first diffusion barrier (4); a second chamber (3) arranged in the solid state electrolyte (20) and the chamber having a pregivable constant oxygen partial pressure; on the solid state electrolyte, an oxygen pump electrode (9) subjected to the exhaust gas; a further oxygen pump electrode (7; 8) as well as an NO pump electrode (10) in the at least one chamber (1; 2); and an oxygen reference electrode (6) arranged in the second chamber (3); and at least a voltage is made available at the electrodes and at least a pump current is evaluated as a measurement signal, is characterized in that the voltages ( $U_{IPE}$ ;  $U_{O2}$ ;  $U_{NO}$ ), which are applied to the electrodes, are changed in dependence upon the currents, which flow in the electrode feed lines and/or between the electrodes (6; 7; 8; 9; 10), during operation of the sensor in such a manner that the voltages correspond to pregivable desired values, these voltages being applied to the electrodes (6; 7; 8; 9; 10) in the interior of the sensor.

(FIG. 1)